the repeated secretion are quite similar to those which happen in so many animal glands.

The various changes which accompany mucilaginous secretion are not shown by *Blechnum occidentale*. In *Osmunda* the drops are much less defined, and, although more numerous, are smaller. The changes which occur in the drops were observed in *Blechnum occidentale*. In *Osmunda* we did not succeed in following them; but since the two glands practically present the same structure in the mature cells, we are led to infer that the various processes are similar in both.

The secretion consisting of the mucilage drops and the disorganised protoplasmic framework escapes by the rupturing of the wall, and the disintegrated nucleus and the endoplasm are the only structures left in the cell.

In *Osmunda* the transverse walls are callussed on both sides, and the whole system (wall and callus plate) is obviously perforated by fine holes, which in the functional cell are filled by delicate strands of protoplasm. These establish a direct continuity between the protoplasmic contents of the various cells of the hair.

We believe that in their main features the phenomena attending the formation of the secretion are such as are very widespread, and limited neither to the ferns nor to the particular case of secretion of mucilage.

II. "On Rabies." By G. F. Dowdeswell, M.A. Communicated by Prof. Victor Horsley, F.R.S. (From the Laboratory of the Brown Institution.) Received May 9, 1887.

(Abstract.)

In this investigation, commenced early in 1885 during the outbreak of rabies in London, the first experiments, made by subcutaneous inoculations with the saliva of rabid street dogs, all failed to produce infection.

Subsequently, adopting the methods described by M. Pasteur, I found—

1. That the virus of rabies and hydrophobia resides in the cerebro-spinal substance and in the peripheral nerves, and is not confined to the salivary glands, as hitherto supposed.

2. That by inoculation of this substance upon the brain of another animal, by trephining, infection follows much more quickly and certainly than by subcutaneous inoculation.

3. That rabies, however produced, in both dogs and rabbits, is essentially a paralytic affection, the same disease in both animals, and

that there is no constant distinction between the so-termed "dumb" and "furious" rabies.

4. That the initial virulence of street rabies is usually increased, and becomes remarkably constant, by passing through a series of rabbits.

5. That the activity of the virus is shown by the duration of the incubation period, to which it is inversely proportionate.

6. That the tissues of an infected animal do not themselves become infective till towards the end of the incubation period.

7. That of a large number of drugs which were tried, both germicides and those acting specifically upon the cerebro-spinal system, none materially modify the action of the virus in the rabbit.

8. That by a series of subcutaneous inoculations with virus treated by the methods of M. Pasteur, immunity, even against subsequent infection, cannot be conferred upon the rabbit; and that the extreme and unexpected constitutional refractoriness of the dog to infection with rabies, by any method of inoculation—as I have found it in the limited number of experiments I have been able to perform with this animal—renders it extremely difficult to determine the effect of such remedial or prophylactic measures in it; and that it is by the statistics of the treatment alone that their effect with man can be decided; but that judging from the results of the experiments of others, the principle of the method as affirmed by M. Pasteur appears to be established, though unquestionably the "rapid" or "intensive" treatment, as I have found, is liable to produce infection.

III. "On the Tubercular Swellings on the Roots of *Vicia Faba*." By H. Marshall Ward, M.A., F.L.S., Fellow of Christ's College, Cambridge, Professor of Botany in the Forestry School, Royal Indian College, Cooper's Hill. Communicated by Prof. M. Foster, Sec. R.S. Received May 29, 1887.

(Abstract.)

In this paper the author gives a detailed account of his investigations, of which a preliminary note appeared at p. 331. The following are the main conclusions:—

The tubercles always contain a fungus, allied to the Ustilagineæ, which enters the root by way of the root hairs. The ultimate branches of the hyphæ in the cells of the tubercle bud off minute bodies (gemmules), which are afterwards scattered in the soil. This process resembles the budding discovered in Ustilagineæ by Brefeld. By means of cultures and observations the author shows that the infection from the soil is probably due to these minute gemmules acting as spores.